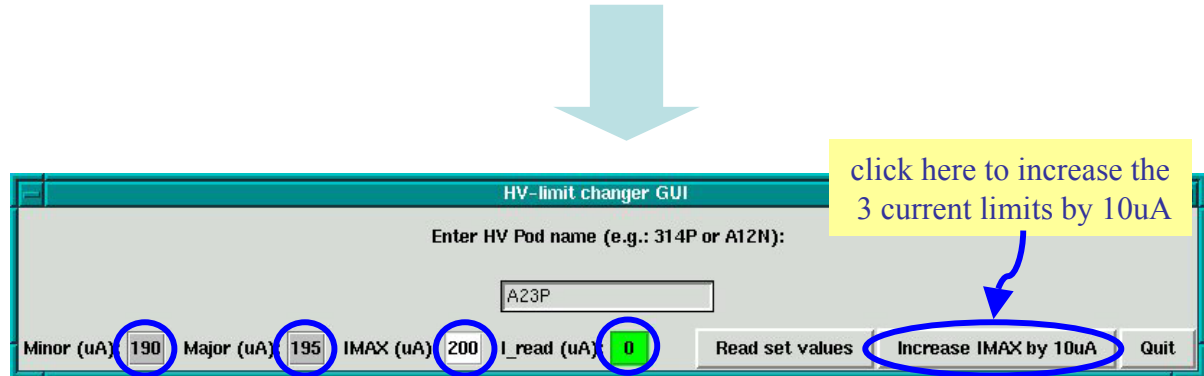
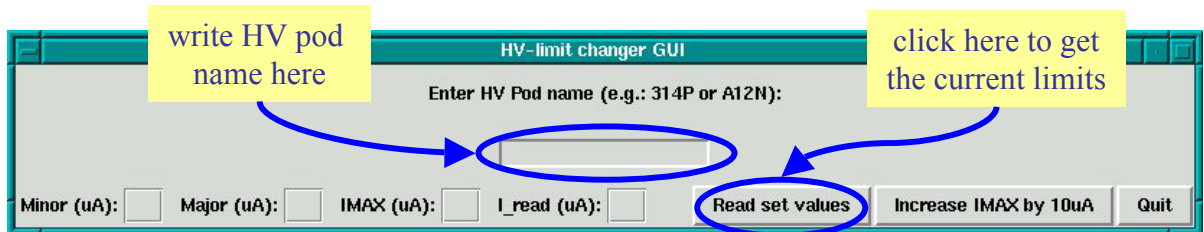


HV current limit GUI

Start the HV current limit GUI using the « GUI starter » GUI, Page B, button 4 (to start the GUI starter, type in a terminal window: `cd; setup d0online; ./startguis.py`)

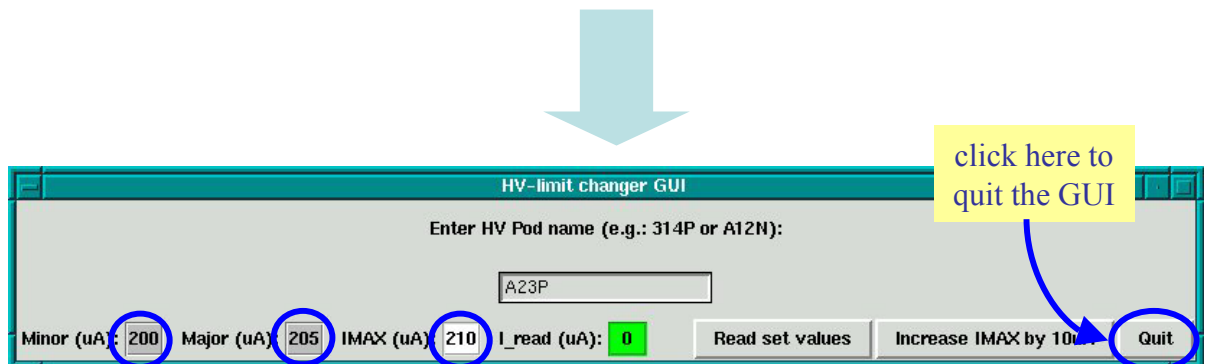


Minor Alarm
Current Limit

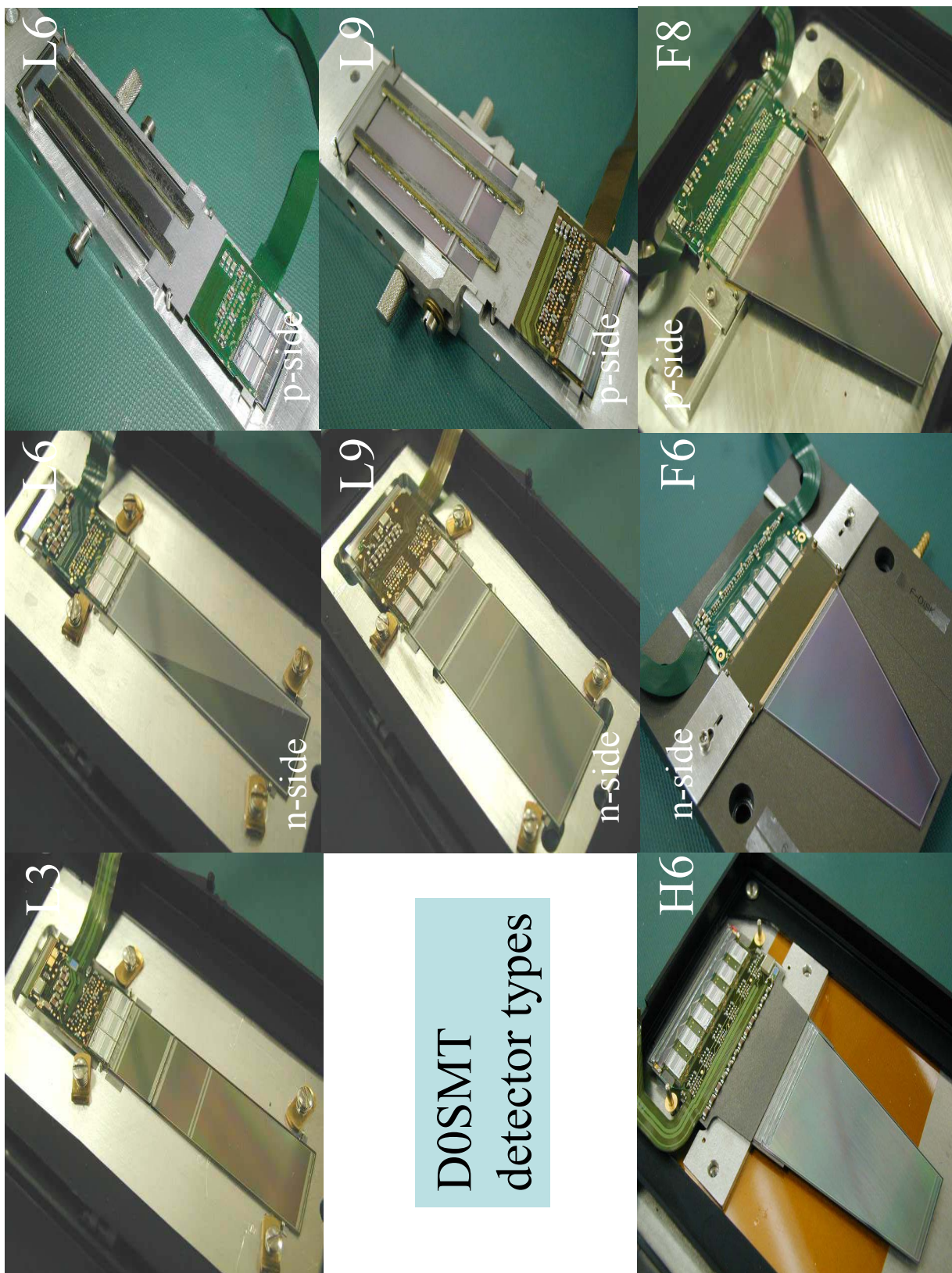
Major Alarm
Current Limit

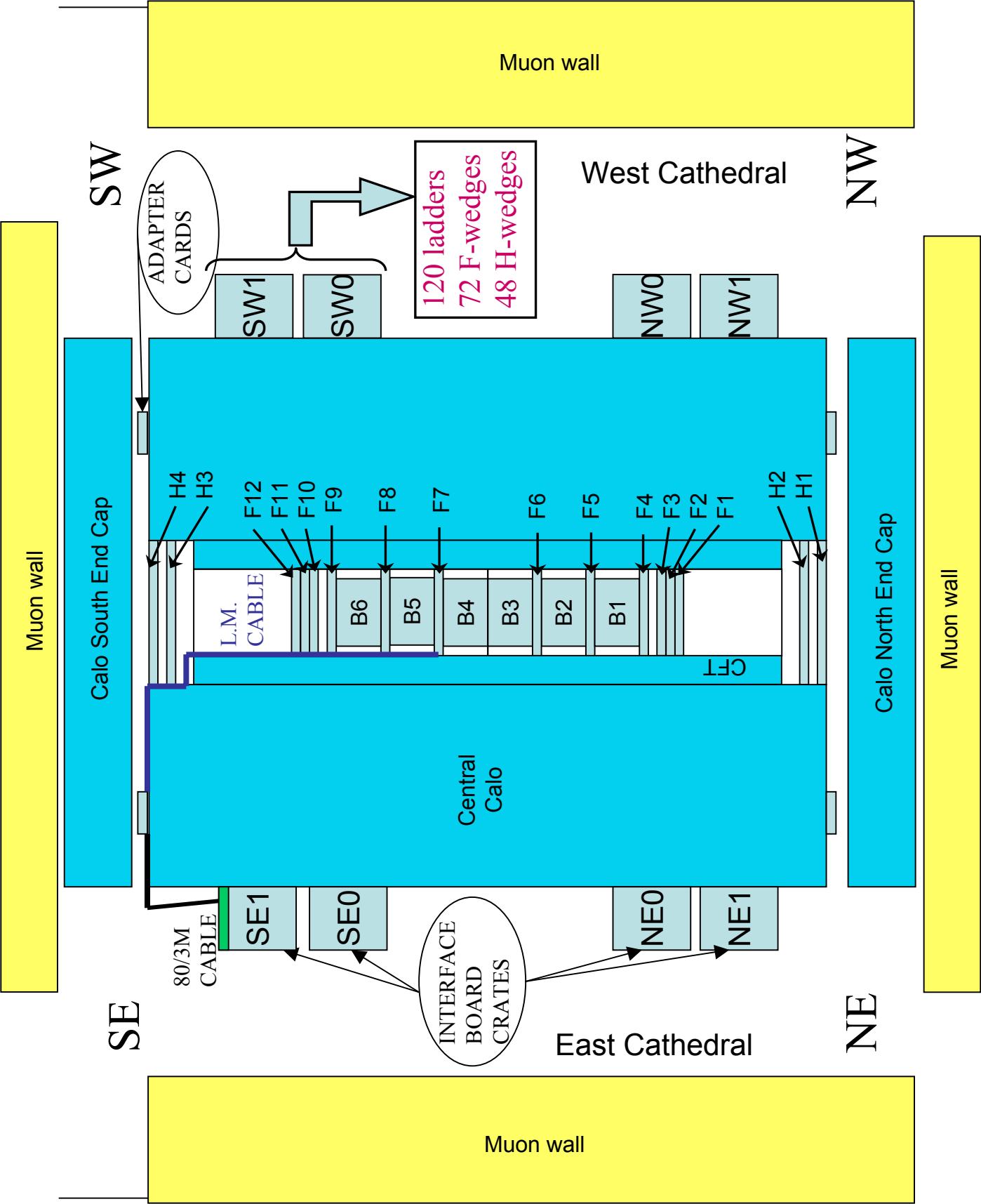
Current Trip
Limit

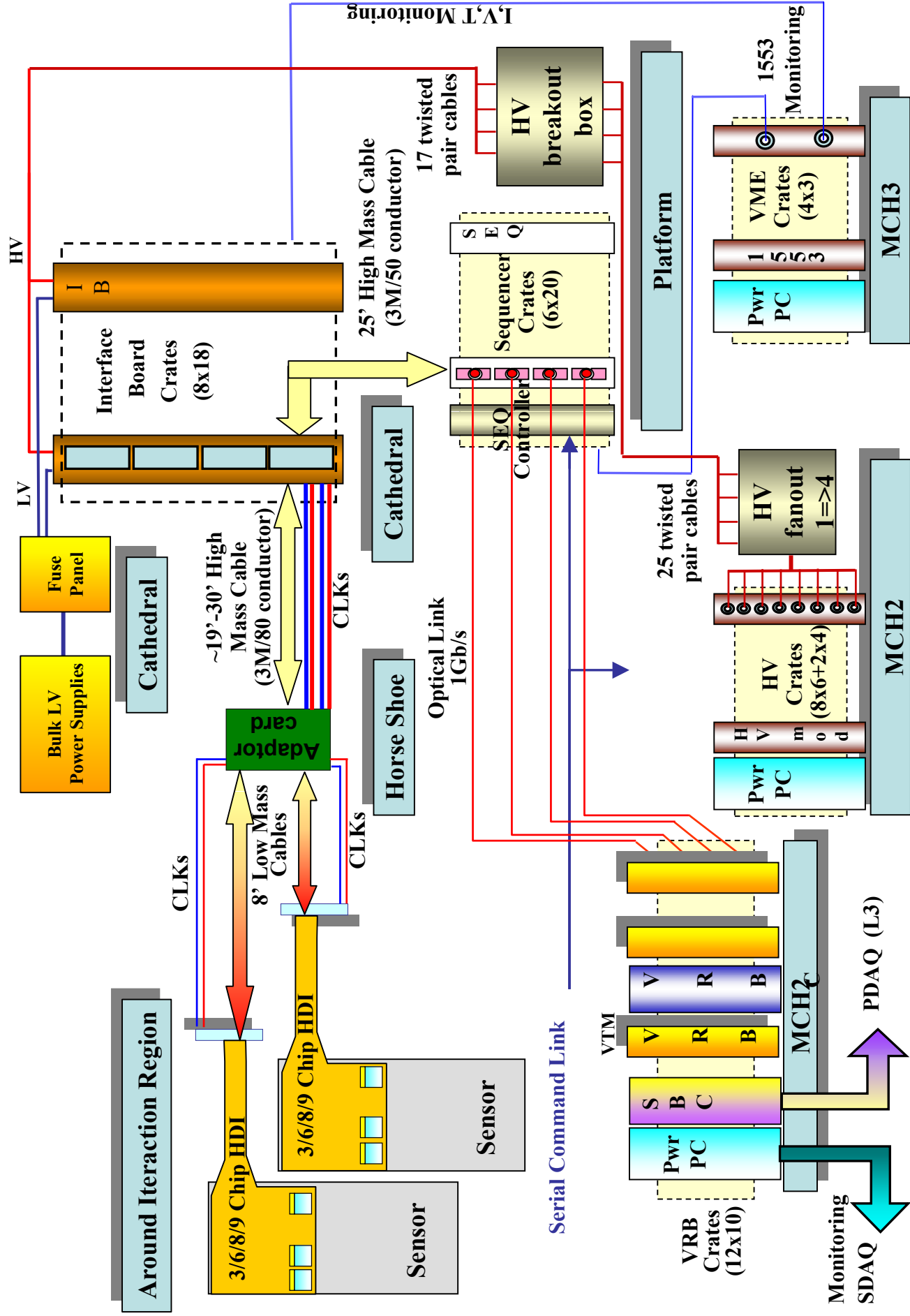
Actual Pod
Read Back Current



current limits are updated and
a mail is sent to Breese and Eric







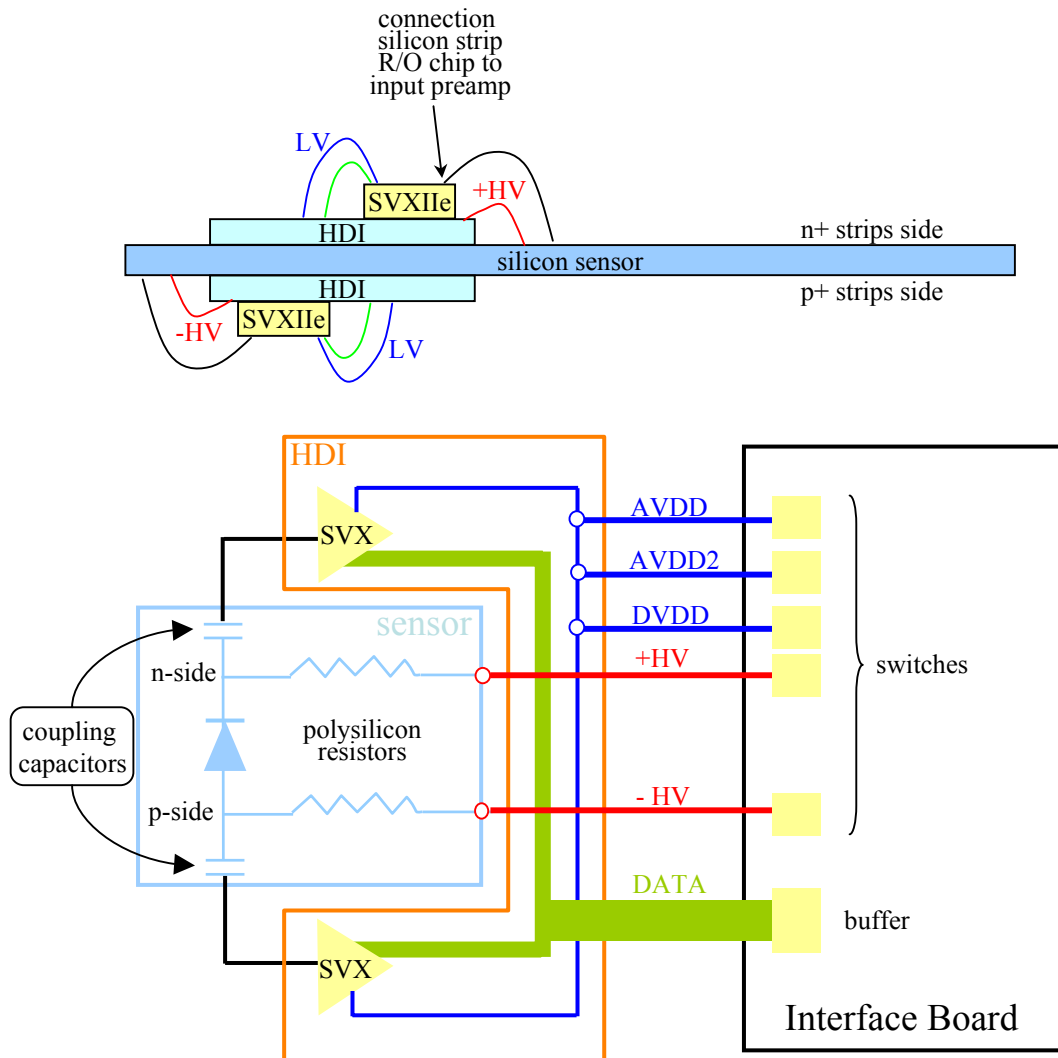
PowerPCs and Single Board Computers are accessed thru Ethernet

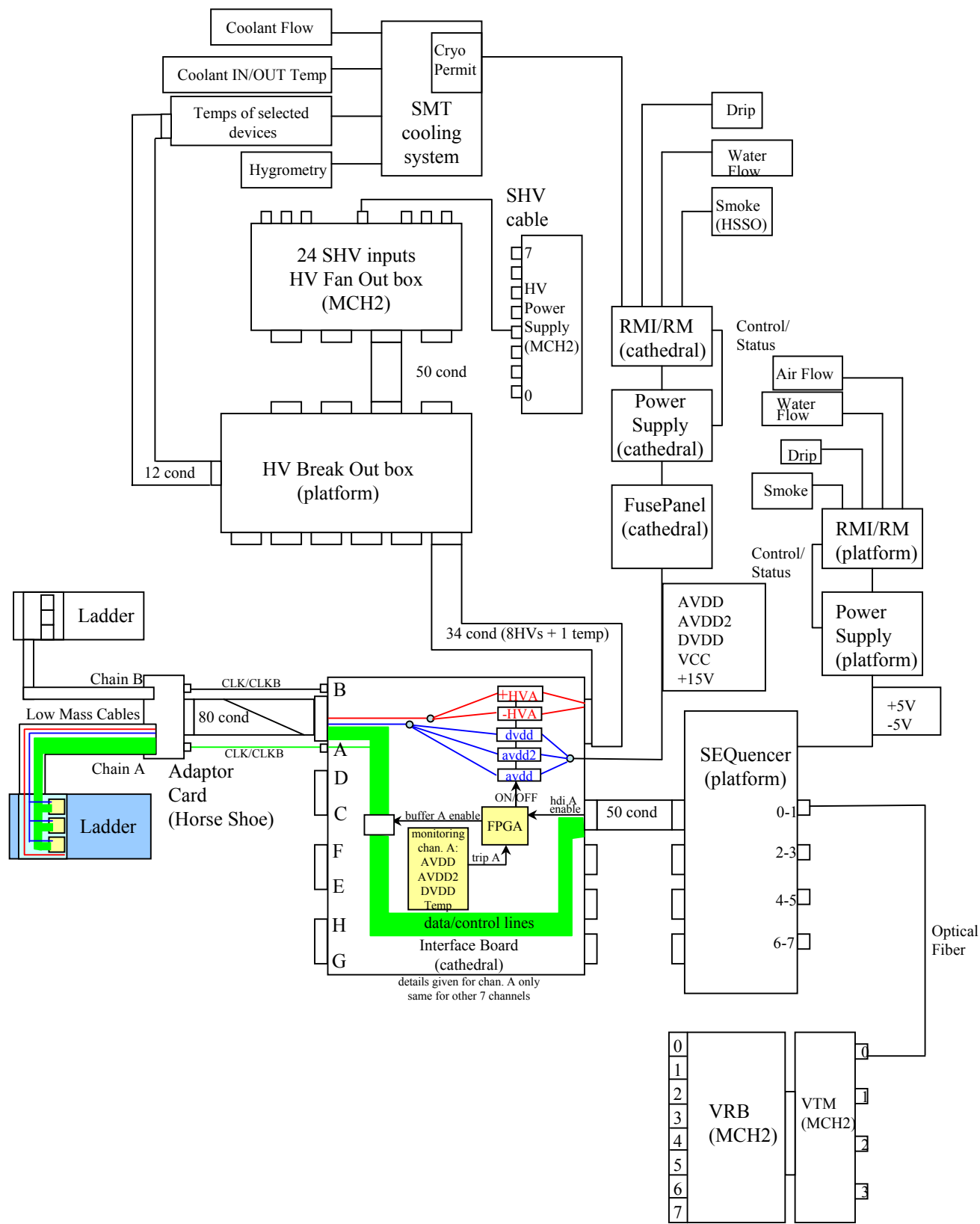
About LV and HV (1)

Our silicon detectors are made of 1 or 2 silicon sensor(s) glued to an HDI which carries SVXIle chips. These chips allow to read out information about the charge collected on the sensor strips, when charged particles went through the sensor(s). For the detector to function properly:

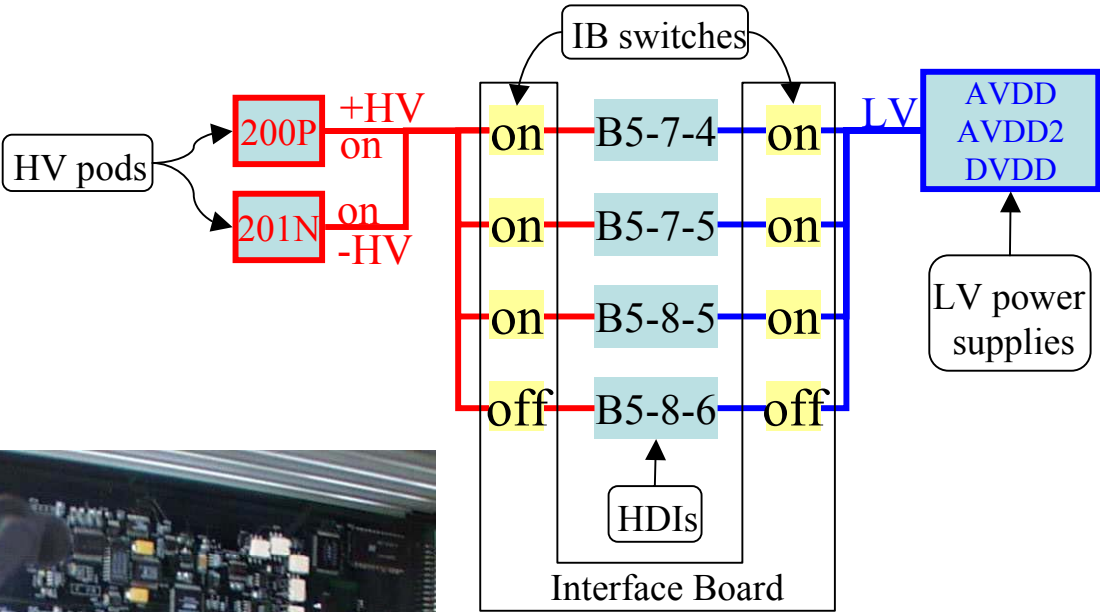
- the silicon sensors must be depleted. This requires 1 (single sided sensors) or 2 (double-sided sensors) HV power supplies.
- the SVXIle read out chips must be powered. This requires 3 different LV power supplies: AVDD, AVDD2, and DVDD.

HV and LV are provided by the IB to the HDI which, in turn, provides it to the sensor(s) and to the SVXIle chips, respectively.





About LV and HV (3)

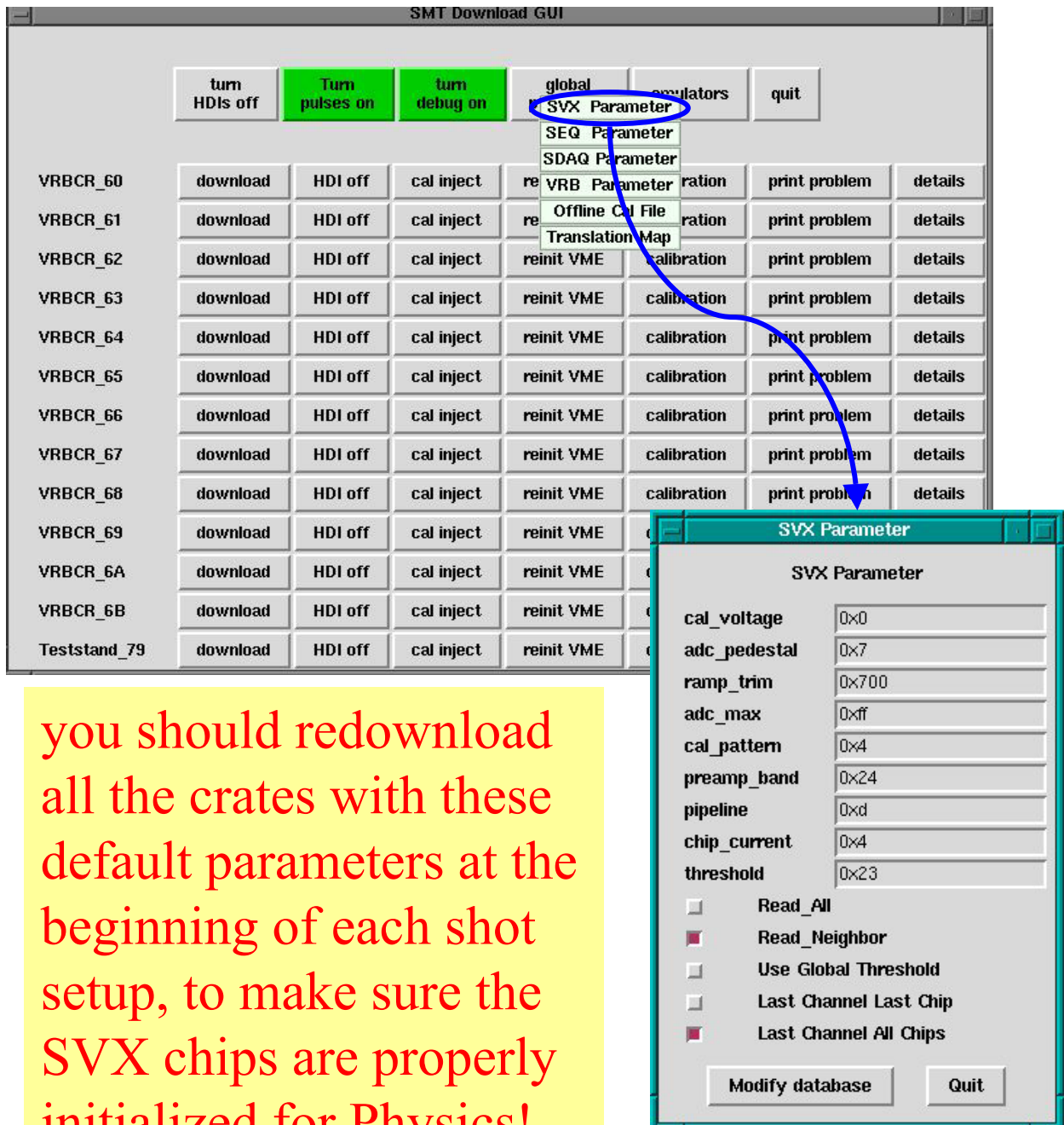


General rule for HDI(s):
Turn ON LV first, then HV.
Turn OFF HV first, then LV.

HV +/- switches

AVDD/AVDD2/DVDD
switches

SVXIIe read out chips download parameters



The screenshot shows the SMT Download GUI with a table of parameters for various crates. A blue arrow points from the 'SVX Parameter' button in the top toolbar to the 'SVX Parameter' dialog box. The dialog box contains the following parameters:

Parameter	Value
cal_voltage	0x0
adc_pedestal	0x7
ramp_trim	0x700
adc_max	0xff
cal_pattern	0x4
preamp_band	0x24
pipeline	0xd
chip_current	0x4
threshold	0x23

Below the parameters are four checkboxes:

- ☐ Read_All
- ☒ Read_Neighbor
- ☐ Use Global Threshold
- ☐ Last Channel Last Chip
- ☒ Last Channel All Chips

At the bottom of the dialog are two buttons: 'Modify database' and 'Quit'.

you should redownload all the crates with these default parameters at the beginning of each shot setup, to make sure the SVX chips are properly initialized for Physics!

High DVDD currents and HDI LV Trips (1)

If a lot of HDIs show high currents in the DVDD Current GUI, that usually means that the SVX chips are not read out. This happens when the crates are not in a global run, or when the global run is pause or stalled for some reason. **You should not let the system in that state for too long.**

SMT DVDD CURRENTS (mA) / 11-12-02 / # of non powered HDI(s): 95

HWDA02	35	39	27	27	47	35				HWIA02	35	35	35	27	39	50				NEOA02	39	51	39	35	35	39				NETA02	19	35	23	35	39	35			
HWDA03	102	117	110	110	102	0				HWIA03	102	0	3	106	0	0				NEOA03	110	113	96	102	0	106				NETA03	102	129	110	102	106	113			
HWDA04	113	96	117	102						HWIA04	102	129	110	133						NEOA04	106	0	125	141						NETA04	121	121	0	168					
HWDA05	66	70	55	90	66	71	02	11		HWIA05	62	50	70	90	70	66	71	62		NEOA05	71	0	0	70	70	0	66	71		NETA05	71	66	70	66					
HWDA06	82	70	82	90						HWIA06	74	78	0	86						NEOA06	5	86	78	74						NETA06	66	102	74	125		62	96		
HWDA07	113	102	96	96	106	0	96	102		HWIA07	96	110	113	110	96	106	102	96		NEOA07	106	106	204	113	113	0	106	102		NETA07	117	102	110	106	102	117	96	3	
HWDA08	02	02	3	71	02	106				HWIA08	62	90	70	71	02	62				NEOA08		02	7			06	0			NETA08	70	66		06	70	74	70		
HWDA09	90	113	0	137	86	3				HWIA09	86	102	117	94	90	90				NEOA09	129	90	82	106	129	96				NETA09	82	102	153	102	102	94			
HWDA0A	98	78	74	3	74	66	62	02		HWIA0A	74	94	86	0	78	70	90	62		NEOA0A	74	78	0	74	62	66	96	82		NETA0A	78		90	62	82	78	62	0	
HWDA0B	27	59	39	33	35	3				HWIB0C	70	3	71	227	0	62				NEOB0C	43	39	23	31	39	39				NETB0C	02	90	70	71	71	82	94	06	
HWDA0D	110	106	110	106	110	172				HWIB0D	94	113	96	86	117	141				NEOB0D	106	110	102	125	94	110				NETB0D	102	96	86	113	106	94			
HWDA0E	113	110	106	7						HWIB0E	70	66	74	0	70	0	0	62		NEOB0E	106	129	102	125						NETB0E	74	110	66	70	86	78	78	0	
HWDA0F	90	74	70	62	0	0	70	78		HWIB0F	02	3	3	62	78	06				NEOB0F	02	70	71	71	0	70	70	74		NETB0F	71	74	71	62	71	78			
HWDA10	102	78	78	82						HWIB10	96	86	110	96	137	125				NEOB10	0	62	82	70						NETB10	96	94	96	129	125	106			
HWDA11	110	3	117	0	106	113	106	106		HWIB11	74	0	82	66	0	74	74	78		NEOB11	106	96	106	106	86	0	113	102		NETB11	66	0	82	74	78	0	70	0	
HWDA12	0	70	3	71	02	70				HWIB12	102	71	66	62	71	71				NEOB12	06	06	71	71	82	71				NETB12	02	70	82	62	70	70			
HWDA13					102	96	102	113	102	7										NEOB13	102	90	106	86	110	102				NETB13	90	102	86	94	96	96			
HWDA14	74	66	78	70	74	82	70	0		HWIB14	82	74	70	74	70	74	74	3		NEOB14	74	0	62		78	82	70	66		NETB14	78	78	82	74	78	82	78	78	
SWDA02	43	0	23	27	43	39				SWIA02	3	35	35	31	35	39				SEOA02	35	0	39	27	51	0				SETA02	35	43	39	43	51	35			
SWDA03	90	96	106	106	125	94				SWIA03	113	102	110	90	0	129				SEOA03	102	102	102	90	7	113				SETA03	106	90	106	90	121	96			
SWDA04	3	0	3	113						SWIA04	110	145	102	125						SEOA04	94	129	106	102						SETA04	0	102	117	102					
SWDA05	0	74	90	66	82	78	70	74		SWIA05	70	90	0	94	74	70	70	86		SEOA05	70	96	90	82	3	70	96	62		SETA05	70	74	70	90		96	78		
SWDA06	70	3	90	66						SWIA06	02	70			121	70				SEOA06	66	70	3	82						SETA06	71	70	70	71	66	70			
SWDA07	102	102	96	102	106	94	96	106		SWIA07	106	106	110	102	102	110	113	102		SEOA07	3	94	94	113	110	106	113	125		SETA07	117	110	102	102	106	102	106	106	
SWDA08	78	74	82	74	70	70				SWIA08	82	70	62	55	78	78				SEOA08	0	0	0	3	3	0				SETA08	70	70	70	70	66	74			
SWDA09	90	94	102	70	90	125				SWIA09	0	96	06	94	91	133				SEOA09	90	91	117	110	119	113				SETA09	90	91	91	90	90	106			
SWDA0A	74	74	66	90	74	62	0	78		SWIA0A	62	129	58	74	74	62	55	66		SEOA0A	66	82	78	82	78	47	86	86		SETA0A	78	82	110	74	0	184	74	70	
SWDA0B	31	31	43	35	35	35				SWIB0C	90	82	82	78	70	3				SEOB0C	51	39	43	31	31	0				SEIB0C	82	0	74	70	82	90			
SWDA0D	90	102	106	106	106	102				SWIB0D	0	0	106	90	90	106				SEOB0D	110	90	90	106	106	129				SEIB0D	7	11	110	06		0	129		
SWDA0E	90	133	125	110						SWIB0E	62	78	70	0	66	0	78	94		SEOB0E	110	117	117	125						SEIB0E	74	90	78	70	82	78	70	82	
SWDA0F	74	66	82	66	117	66	70	82		SWIB0F	78	66	78	70	62	70				SEOD0F	62	62	70	94	78	70	74	90		SEIB0F		74	62	82	0	66	94		
SWDA10	70	70	70	94						SWIB10	113	94	113	129	91	90				SEOB10	06	100	70	66						SEIB10	117	113	117	90	110	06			
SWDA11	106	94	102	117	0	117	113	102		SWIB11	66	82	78	70	78	78	94			SEOB11	102	117	3	113	96	106	113	94		SEIB11	90	62	74	74	86	90	82	0	
SWDA12	82	66	66	66	82	66				SWIB12	70	0	78	66	66	70				SEOD12	78	82	74	70	74	74				SEIB12	82	3	74	74	74	0			
SWDA13	102	90	86	91	91	102				SWIB13	90	90	91	91	90	06				SEOB13	06	90	91	90	90	82				SEIB13	90	90	110	106	91	90			
SWDA14	70	0	70	3	0	74	78	74		SWIB14	0	78	90	74	86	82	66	78		SEOB14	78	74	66	62	137	78	82	66		SEIB14	58	0	74	86	70	78	66	3	

DVDD Currents GUI color coding:

orange: LV is OFF

green: LV is ON and I_DVDD OK

purple: LV is ON and I_DVDD slightly high

red: LV is ON and I_DVDD high

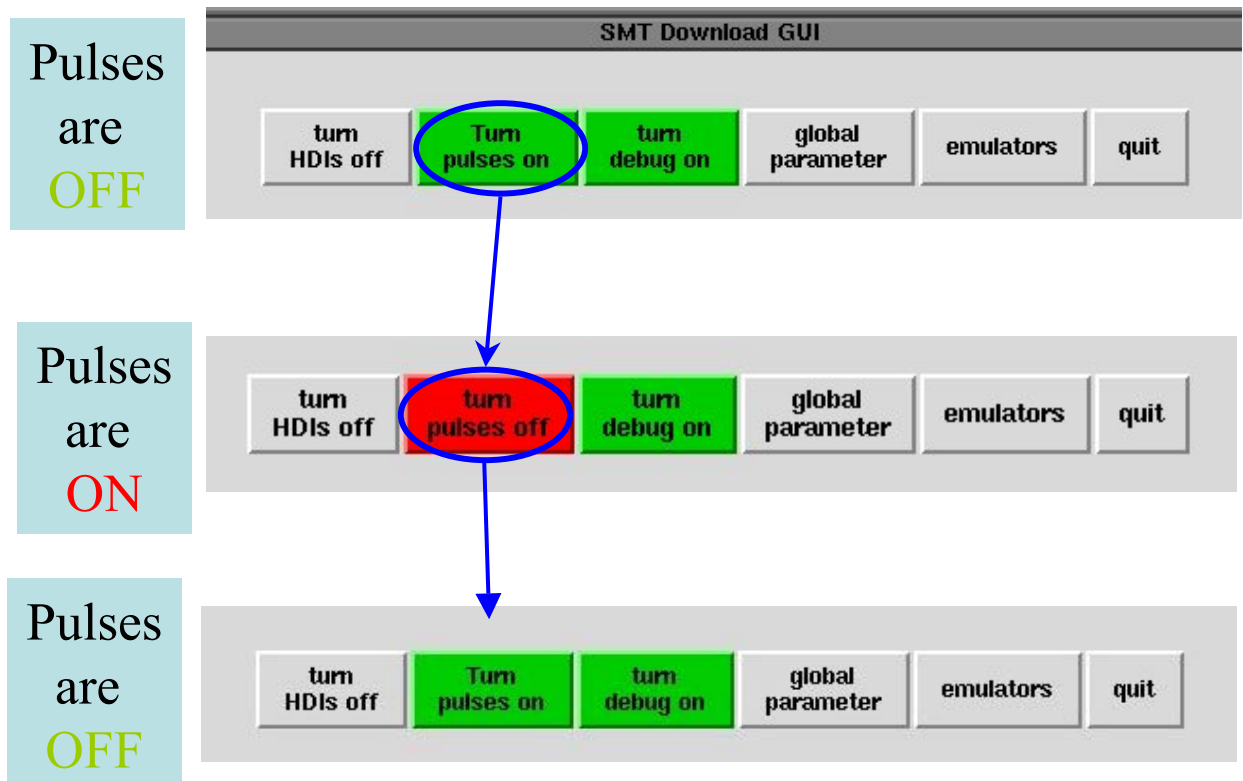
red/black: Abnormal state (Trip or Buffer Disabled)

grey: Channel permanently disabled or not used

High DVDD currents and HDI LV Trips (2)

A way to lower the DVDD current drawn by the SVX chip, is to send trigger to the Sequencer Controllers so as to make the chips work. This can be achieved in several ways, by:

- having the crates in a working Global Run,
- having the crates out of the Global Run and making use of a special run which just sends triggers to the sequencer crates (the VRB crates are not read out). This is described in the « SMT Crater » section,
- sending triggers to the Sequencer Controllers via the 1553, by pressing the « turn pulses ON » button in the SMT Download GUI main page. **Do not forget to « turn the pulses OFF » before the Global Run starts or resumes readout of the SMT crates.** If you try to read out the crates while pulses are ON, this will result in 100% L1 FEB, because you are sending more triggers to the sequencer crates than to the VRB crates.



High DVDD currents and HDI LV Trips (3)

If some HDIs consistently draw too much current (red or purple on the DVDD Currents GUI) you need to REDOWNLOAD them. The first step is to find what VRB they are connected to. This can be done looking at the IB mapping chart:

NW0A02	31	0	23	27	39	31			NW1A02	27	35	35	27	35	27		
NW0A03	102	102	102	110	102	0			NW1A03	102	0	3	110	129	98		
NW0A04	98	94	98	94					NW1A04	98	94	102	94				
NW0A05	70	78	58	74	66	78	78	11	NW1A05	66	70	74	70	70	66	82	62
NW0A06	70	62	66	62					NW1A06	66	74	0	66				
NW0A07	113	106	98	98	110	3	102	102	NW1A07	102	113	106	110	86	102	106	86
NW0A08	82	66	3	74	82	74			NW1A08	66	74	70	74	78	66		
NW0A09	86	90	0	110	86	3			NW1A09	82	94	106	98	90	86		
NW0A0A	117	70	74	3	62	78	0	0	NW1A0A	78	74	78	0	82	70	66	82
NW0B0C	27	39	35	35	35	3			NW1B0C	74	3	74	102	0	62		
NW0B0D	106	102	106	102	98	98			NW1B0D	90	102	98	86	90	113		
NW0B0E	130	253	125	7					NW1B0E	66	70	70	0	66	0	0	62
NW0B0F	86	78	70	62	0	0	70	78	NW1B0F	78	3	3	62	82	70		
NW0B10	0	74	74	74	70				NW1B10	94	90	98	86	90	94		
NW0B11	1	110	3	106	0	106	106	98	NW1B11	78	3	82	58	0	74	74	78
NW0B12	0	0	3	0	78	70			NW1B12	70	74	66	62	74	70		
NW0B13			106	102	106	94	98	7	NW1B13	82	11	94	78	98	102		
NW0B14	3	66	74	62	74	82	70	0	NW1B14	78	74	70	78	74	66	106	3

west	0	1	NORTH	0	1	east
66	NW 0A02 VRB 6609	NW 1A02 VRB 6209	60	NE 0A02 VRB 6009	68	NE 1A02 VRB 6809
	NW 0A03 VRB 6610	NW 1A03 VRB 6210		NE 0A03 VRB 6010		NE 1A03 VRB 6810
	NW 0A04 VRB 6611	NW 1A04 VRB 6211		NE 0A04 VRB 6011		NE 1A04 VRB 6811
	NW 0A05 VRB 6612	NW 1A05 VRB 6212		NE 0A05 VRB 6012		NE 1A05 VRB 6812
	NW 0A06 VRB 6611	NW 1A06 VRB 6211		NE 0A06 VRB 6011		NE 1A06 VRB 6811-2
	NW 0A07 VRB 6613	NW 1A07 VRB 6213		NE 0A07 VRB 6013		NE 1A07 VRB 6813
	NW 0A08 VRB 6615	NW 1A08 VRB 6215		NE 0A08 VRB 6015		NE 1A08 VRB 6815
	NW 0A09 VRB 6616	NW 1A09 VRB 6216		NE 0A09 VRB 6016		NE 1A09 VRB 6816
	NW 0A0A VRB 6618	NW 1A0A VRB 6218		NE 0A0A VRB 6018		NE 1A0A VRB 6818
	NW 0B0C VRB 6409	NW 1B0C VRB 6617		NE 0B0C VRB 6A09		NE 1B0C VRB 6015,17
	NW 0B0D VRB 6410	NW 1B0D VRB 6615-7		NE 0B0D VRB 6A10	60	NE 1B0D VRB 6015-7
	NW 0B0E VRB 6411	NW 1B0E VRB 6619		NE 0B0E VRB 6A11		NE 1B0E VRB 6019
	NW 0B0F VRB 6412	NW 1B0F VRB 6417		NE 0B0F VRB 6A12,17		NE 1B0F VRB 6A17
	NW 0B10 VRB 6411	NW 1B10 VRB 6415-7		NE 0B10 VRB 6A11	6A	NE 1B10 VRB 6A15-7
	NW 0B11 VRB 6413	NW 1B11 VRB 6419		NE 0B11 VRB 6A13		NE 1B11 VRB 6A19
	NW 0B12 VRB 6415	NW 1B12 VRB 6217		NE 0B12 VRB 6A15		NE 1B12 VRB 6817
	NW 0B13 VRB 6416	NW 1B13 VRB 6215-7		NE 0B13 VRB 6A16	68	NE 1B13 VRB 6815-7
	NW 0B14 VRB 6418	NW 1B14 VRB 6219		NE 0B14 VRB 6A18		NE 1B14 VRB 6819

west	0	1	SOUTH	0	1	east
67	SW 0A02 VRB 6709	SW 1A02 VRB 6309	61	SE 0A02 VRB 6109	69	SE 1A02 VRB 6909
	SW 0A03 VRB 6710	SW 1A03 VRB 6310		SE 0A03 VRB 6110		SE 1A03 VRB 6910
	SW 0A04 VRB 6711	SW 1A04 VRB 6311		SE 0A04 VRB 6111		SE 1A04 VRB 6911
	SW 0A05 VRB 6712	SW 1A05 VRB 6312		SE 0A05 VRB 6112		SE 1A05 VRB 6912
	SW 0A06 VRB 6711	SW 1A06 VRB 6311		SE 0A06 VRB 6111		SE 1A06 VRB 6911-2
	SW 0A07 VRB 6713	SW 1A07 VRB 6313		SE 0A07 VRB 6113		SE 1A07 VRB 6913
	SW 0A08 VRB 6715	SW 1A08 VRB 6315		SE 0A08 VRB 6116		SE 1A08 VRB 6915
	SW 0A09 VRB 6716	SW 1A09 VRB 6316		SE 0A09 VRB 6117		SE 1A09 VRB 6916
	SW 0A0A VRB 6718	SW 1A0A VRB 6318		SE 0A0A VRB 6119		SE 1A0A VRB 6918
	SW 0B0C VRB 6509	SW 1B0C VRB 6717		SE 0B0C VRB 6809		SE 1B0C VRB 6118
	SW 0B0D VRB 6510	SW 1B0D VRB 6715-7		SE 0B0D VRB 6810	61	SE 1B0D VRB 6116-8
	SW 0B0E VRB 6511	SW 1B0E VRB 6719		SE 0B0E VRB 6811		SE 1B0E VRB 6120
	SW 0B0F VRB 6512	SW 1B0F VRB 6517		SE 0B0F VRB 6812		SE 1B0F VRB 6817
	SW 0B10 VRB 6511	SW 1B10 VRB 6515-7		SE 0B10 VRB 6811	6B	SE 1B10 VRB 6815-7
	SW 0B11 VRB 6513	SW 1B11 VRB 6519		SE 0B11 VRB 6813		SE 1B11 VRB 6819
	SW 0B12 VRB 6515	SW 1B12 VRB 6317		SE 0B12 VRB 6815		SE 1B12 VRB 6917
	SW 0B13 VRB 6516	SW 1B13 VRB 6315-7		SE 0B13 VRB 6816	69	SE 1B13 VRB 6915-7
	SW 0B14 VRB 6518	SW 1B14 VRB 6319		SE 0B14 VRB 6818		SE 1B14 VRB 6919

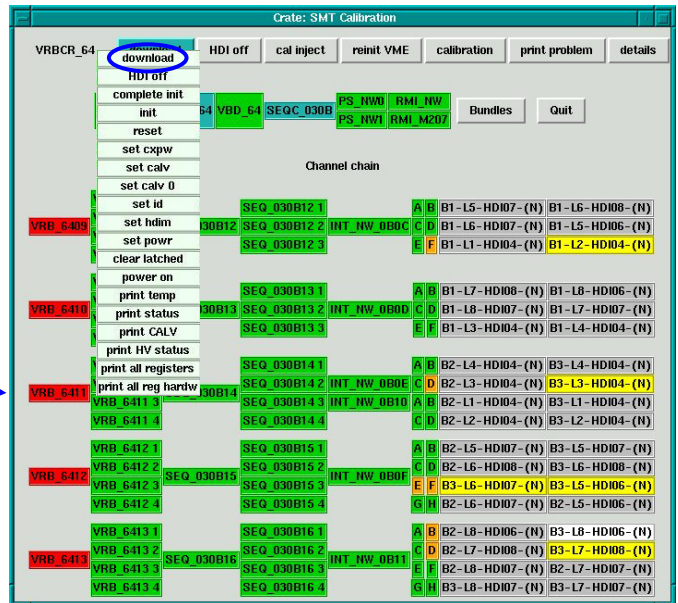
High DVDD currents and HDI LV Trips (4)

Then, go to the corresponding VRB in the SMT Download GUI, and click download on the Left-click menu of the corresponding sequencer.

Most buttons have a Right- and Left-click menus.

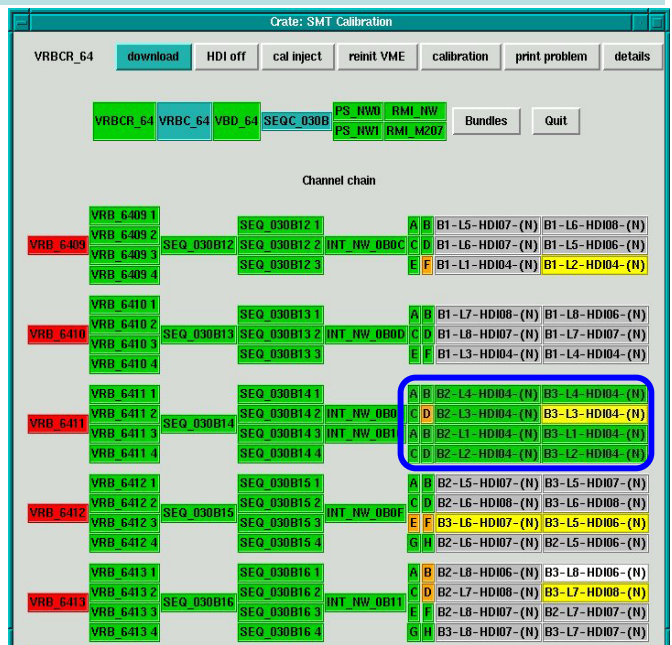
A Left-click on an item of a menu executes that item

A Right-click on a menu closes it.



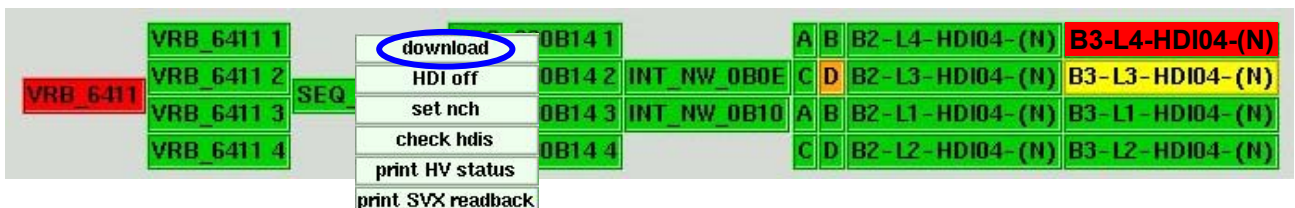
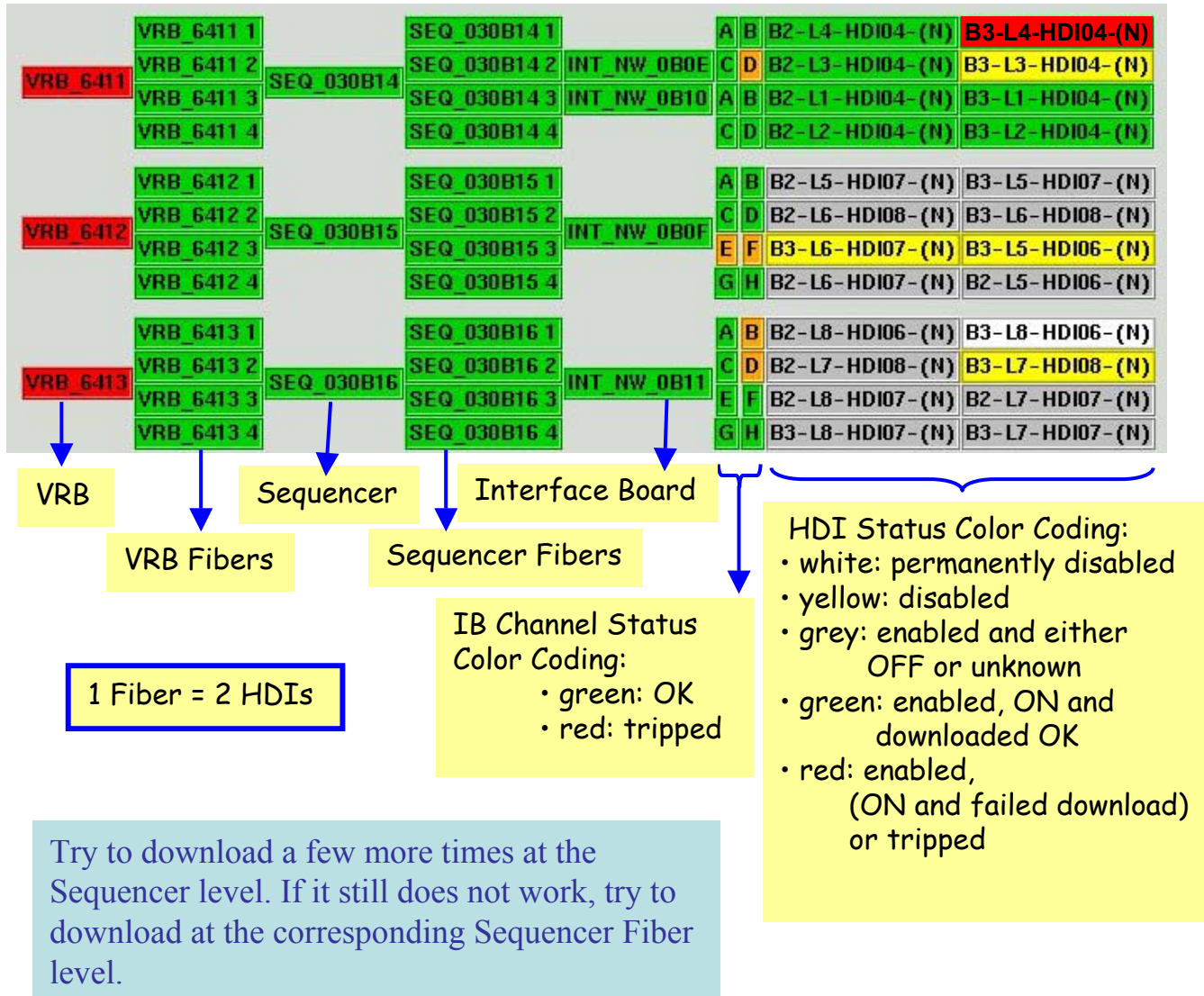
If the download was successful, the HDIs should appear green, both in the Download GUI and on the DVDD Currents GUI:

NW0A02	31	0	23	27	39	31		
NW0A03	102	102	102	110	102	0		
NW0A04	98	94	98	94				
NW0A05	70	78	58	74	66	78	78	11
NW0A06	70	62	66	62				
NW0A07	113	106	98	98	110	3	102	102
NW0A08	82	66	3	74	82	74		
NW0A09	86	90	0	110	86	3		
NW0A0A	117	70	74	3	62	78	0	0
NW0B0C	27	39	35	35	35	3		
NW0B0D	106	102	106	102	98	98		
NW0B0E	102	102	94	7				
NW0B0F	86	78	70	62	0	0	70	78
NW0B10	74	74	74	70				
NW0B11	110	3	106	0	106	106	98	
NW0B12	0	0	3	0	78	70		
NW0B13			106	102	106	94	98	7
NW0B14	3	66	74	62	74	82	70	0



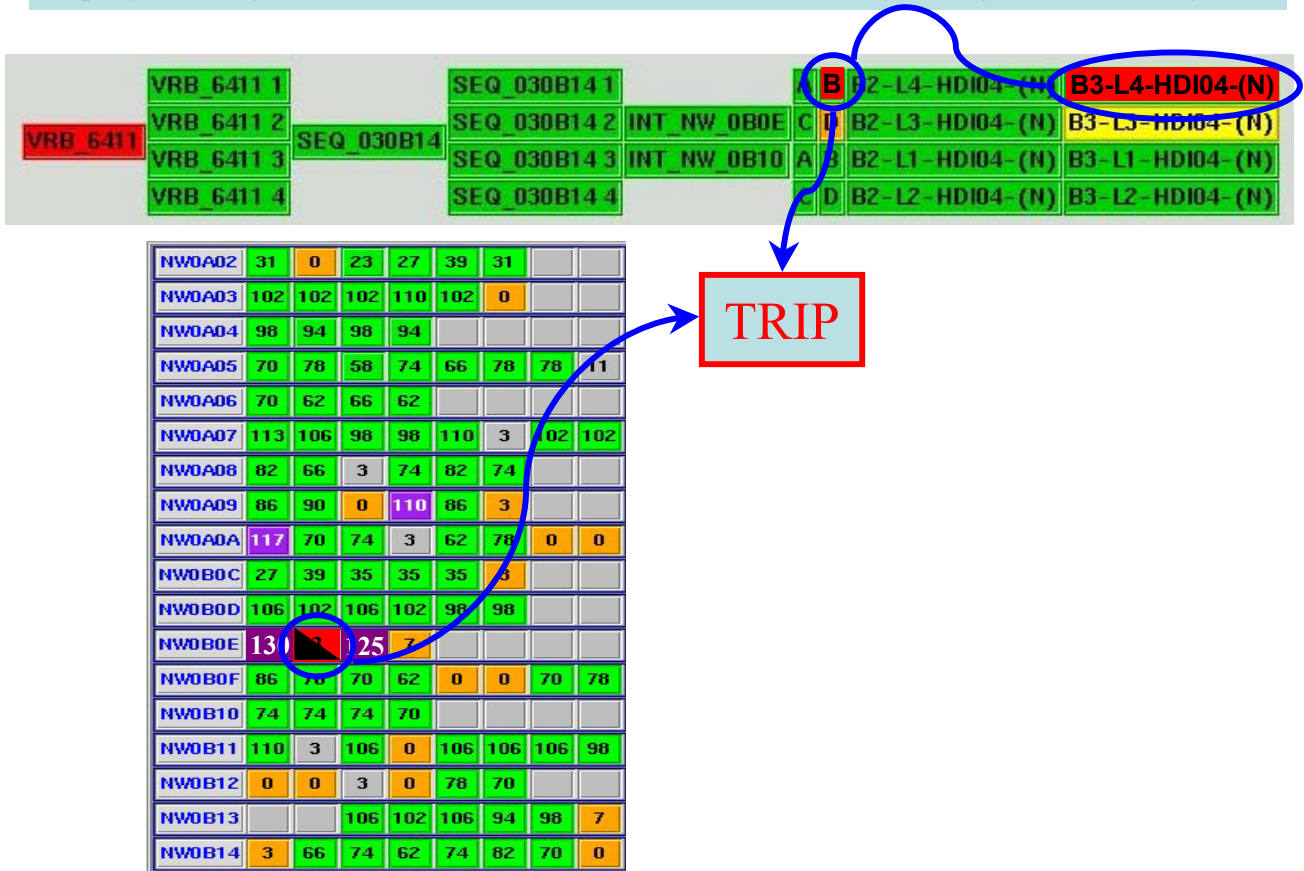
High DVDD currents and HDI LV Trips (5)

If one or more HDIs appear red in the Download GUI, the download was not successful.



High DVDD currents and HDI LV Trips (6)

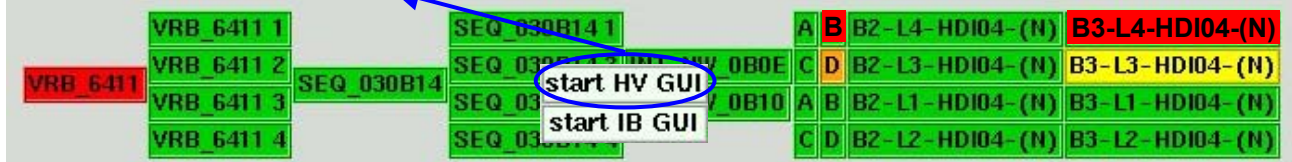
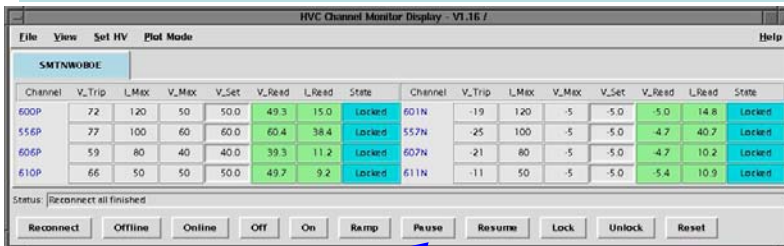
1. If this still does not work, it sometimes helps, when an **HDI is reluctant in downloading properly**, to turn it OFF and ON again.
2. In the same way, if an **HDI has tripped**, to recover it, you need to clear the trip by turning the HDI OFF and then turn it back ON again, by downloading it.



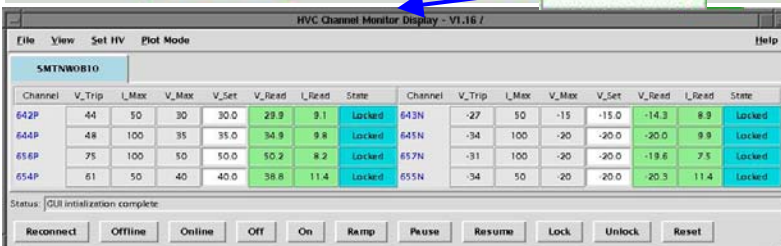
In both cases, if the High Voltage is ON, you will need first, to RAMP DOWN and TURN OFF the HV on ALL HDIs connected to the SAME SEQUENCER as the HDI you want to turn ON or OFF. Otherwise, the Download GUI will not execute your commands.

High DVDD currents and HDI LV Trips (6)

In the left-click menu of each Interface Board connected to the sequencer, the corresponding HDI(s) is(are) connected to, click on « start HV GUI ». For each IB a GUI will pop up showing the pods you need to ramp down and turn off. In our example, HDI B3-L4-HDI04 is connected to sequencer SEQ_030B14. That sequencer is connected to 2 IBs, namely: INT_NW_0B0E and INT_NW_0B10. Start the HV GUI for the first IB:



Do the same for the second IB:



In all the HV GUIs, do « Unlock », « Set HV to 0% », « Ramp », and when the all the « V_Read » values are below 3V, click on « Off ». You are now ready to take care of the problematic HDI.

High DVDD currents and HDI LV Trips (7)

Turn OFF the tripped HDI:

VRB_6411 1

VRB_6411 2

VRB_6411 3

VRB_6411 4

SEQ_030B14

SEQ_030B14 1

SEQ_030B14 2

SEQ_030B14 3

SEQ_030B14 4

INT_NW_0B0E

INT_NW_0B10

A B B2-L4

C D B2-L3

A B B2-L1

C D B2-L2

HDI04-(N)

DIO4-(N)

DIO4-(N)

DIO4-(N)

HDI off

power cycle

calc new threshold

calc noisy chan

calc dead and occ

print HV pods

print HV status

print cal statistics

HV pods GUI

SVX GUI

SVX Thresholds

VRB_6411 1

VRB_6411 2

VRB_6411 3

VRB_6411 4

SEQ_030B14

SEQ_030B14 1

SEQ_030B14 2

SEQ_030B14 3

SEQ_030B14 4

INT_NW_0B0E

INT_NW_0B10

A B B2-L4-HDI04-(N)

C D B2-L3-HDI04-(N)

A B B2-L1-HDI04-(N)

C D B2-L2-HDI04-(N)

B3-L4-HDI04-(N)

B3-L3-HDI04-(N)

B3-L1-HDI04-(N)

B3-L2-HDI04-(N)

NW0A02

31

0

23

27

39

31

NW0A03

102

102

102

110

102

0

NW0A04

98

94

98

94

NW0A05

70

78

58

74

66

78

11

NW0A06

70

62

66

62

NW0A07

113

106

98

98

110

3

102

102

NW0A08

82

66

3

74

82

74

NW0A09

86

90

0

110

86

3

NW0A0A

117

70

74

3

62

78

0

0

NW0B0C

27

39

35

35

35

3

NW0B0D

106

102

106

102

98

98

NW0B0E

130

3

25

7

NW0B0F

86

78

70

62

0

0

70

78

NW0B10

74

74

74

70

NW0B11

110

3

106

0

106

106

106

98

NW0B12

0

0

3

0

78

70

NW0B13

106

102

106

94

98

7

NW0B14

3

66

74

62

74

82

70

0

OFF

As explained earlier, try to download the HDI at the sequencer level or at the Sequencer Fiber level.

If the download worked, in the HV GUIs shown in the previous page, turn the HV ON, « Set HV->100% », « Ramp ». Once the target voltages are reached, « Lock », « File->Quit », and you are done!

If not, you need to turn the HDI off, disable it as explained in the next page ...

Monitoring (1)

Monitoring of the data quality is done at the strip level in processes which run in the VRB crates Power PCs (IOCs). The status of these IOCs can be looked at from the « Readout IOC Monitor » (from GUI starter, page C, button 6).

Power PCs (IOCs)
in the 12 VRB crates

CPU consumption varies
between 50 and 75% when
monitoring is running

IOC Node	CPU %	Mem %	FD %	
crate 0x60 port 8				
d0olsmt11	58	36	38	Reboot
crate 0x61 port 30				
d0olsmt08	52	20	40	Reboot
crate 0x62 port 21				
d0olsmt13	61	20	38	Reboot
crate 0x63 port 7				
d0olsmt07	61	20	38	Reboot
crate 0x64 port 28				
d0olsmt00	53	36	38	Reboot
crate 0x65 port 27				
d0olsmt06	57	41	40	Reboot
crate 0x66 port 26				
d0olsmt09	51	20	56	Reboot
crate 0x67 port 6				
d0olsmt05	56	38	38	Reboot
crate 0x68 port 10				
d0olsmt02	56	37	36	Reboot
crate 0x69 port 25				
d0olsmt03	63	20	36	Reboot
crate 0x6a port 31				
d0olsmt14	59	38	38	Reboot
crate 0x6b port 24				
d0olsmt04	63	42	38	Reboot

Status: GUI initialization complete

Reconnect Reboot

For each VRB crate, the monitoring process captures events from the SBC and makes histograms out of them. A Linux box queries the IOCs one after the other to get their histograms out, so as to allow their browsing through a WEB interface. When an IOC is queried, if the number of events accumulated by the IOC lies between 8,000 and 10,000, an update will be sent for the corresponding crate to the Significant Event System (the result of which is shown in the Alarm Display) for major alarms related to the « Occupancy » and « Dead » categories. An « Occupancy » alarm is set whenever the occupancy of an HDI is greater than 35%. A « Dead » alarm is set if (a) chip(s) of an HDI never appear in the read out stream. Note that disabled HDIs do not generate a « Dead » alarm. **You have to take Occupancy and Dead alarms seriously!**

Monitoring (2)

You can connect with Netscape (or you favorite Browser) to the Monitoring Server page (<http://www-d0ol/smtMonitoring/>). It also appears labeled as « SMT Monitoring Page » in the Netscape Toolbar and in the Bookmarks menu.

click on this to update the page

VRB crates

Last time data were received from IOC in VRB crate 62

Last time update was sent to SES (Alarm system) for crate 65

SMT MONITORING MENU

- SMT_VRB_CR_60
- SMT_VRB_CR_61
- SMT_VRB_CR_62
- SMT_VRB_CR_63
- SMT_VRB_CR_64
- SMT_VRB_CR_65
- SMT_VRB_CR_66
- SMT_VRB_CR_67
- SMT_VRB_CR_68
- SMT_VRB_CR_69
- SMT_VRB_CR_6A
- SMT_VRB_CR_6B
- SMT_VRB_CR_6C
- SMT_VRB_CR_6D
- SMT_VRB_CR_6E
- SMT_VRB_CR_6F
- SMT_VRB_CR_6G
- SMT_VRB_CR_6H
- SMT_VRB_CR_6I
- SMT_VRB_CR_6J
- SMT_VRB_CR_6K
- SMT_VRB_CR_6L
- SMT_VRB_CR_6M
- SMT_VRB_CR_6N
- SMT_VRB_CR_6O
- SMT_VRB_CR_6P
- SMT_VRB_CR_6Q
- SMT_VRB_CR_6R
- SMT_VRB_CR_6S
- SMT_VRB_CR_6T
- SMT_VRB_CR_6U
- SMT_VRB_CR_6V
- SMT_VRB_CR_6W
- SMT_VRB_CR_6X
- SMT_VRB_CR_6Y
- SMT_VRB_CR_6Z
- SMT_VRB_CR_70
- SMT_VRB_CR_71
- SMT_VRB_CR_72
- SMT_VRB_CR_73
- SMT_VRB_CR_74
- SMT_VRB_CR_75
- SMT_VRB_CR_76
- SMT_VRB_CR_77
- SMT_VRB_CR_78
- SMT_VRB_CR_79

IOC DATA UPDATE TIME

CrateName	VRBName	HDName	SVXNumber
SMT_VRB_CR_60	(12-24-2002_16:21:21)		
SMT_VRB_CR_61	(12-24-2002_16:20:51)		
SMT_VRB_CR_62	(12-24-2002_16:20:40)		
SMT_VRB_CR_63	(12-24-2002_16:20:50)		
SMT_VRB_CR_64	(12-24-2002_16:22:7)		
SMT_VRB_CR_65	(12-24-2002_16:20:43)		
SMT_VRB_CR_66	(12-24-2002_16:20:28)		
SMT_VRB_CR_67	(12-24-2002_16:22:1)		
SMT_VRB_CR_68	(12-24-2002_16:21:14)		
SMT_VRB_CR_69	(12-24-2002_16:21:6)		
SMT_VRB_CR_6A	(12-24-2002_16:21:49)		
SMT_VRB_CR_6B	(12-24-2002_16:21:32)		
SMT_VRB_CR_6C	(NONE)		

SES UPDATE TIME

CrateName	VRBName	HDName	SVXNumber
SMT_VRB_CR_60	(12-24-2002_16:18:12)		
SMT_VRB_CR_61	(12-24-2002_16:13:59)		
SMT_VRB_CR_62	(12-24-2002_16:19:14)		
SMT_VRB_CR_63	(12-24-2002_16:19:39)		
SMT_VRB_CR_64	(12-24-2002_16:18:56)		
SMT_VRB_CR_65	(12-24-2002_16:19:4)		
SMT_VRB_CR_66	(12-24-2002_16:18:3)		
SMT_VRB_CR_67	(12-24-2002_16:15:8)		
SMT_VRB_CR_68	(12-24-2002_16:21:46)		
SMT_VRB_CR_69	(12-24-2002_16:21:37)		
SMT_VRB_CR_6A	(12-24-2002_16:20:31)		
SMT_VRB_CR_6B	(12-24-2002_16:18:32)		
SMT_VRB_CR_6C	(NONE)		

SMT MONITORING GRAPHICS

Level	Type	What Information	Data Set
	HDN_TYPE	SIG_HIT_GRAPH	FULL_SET
CrateName	VRBName	HDName	
LowerTreshhold	UpperTreshhold		
0	999999		

SMT MONITORING GRAPHICS

Level	Type	What Information	Data Set
	HDN_TYPE	SIG_HIT_GRAPH	FULL_SET
CrateName	VRBName	HDName	
LowerTreshhold	UpperTreshhold		
0	999999		

As a general rule, the monitoring should always be turned on during Global Runs (zero_bias or physics). Check this by looking at the IOC CPU consumption, on theReadout IOC Monitor GUI, at the « IOC DATA UPDATE TIME » and « SES UPDATE TIME » on the Monitoring WEB page. The monitoring is started at the beginning of a run and stopped at the end of a run. If monitoring does not seem to be on, during a Global Run, check with the DAQ shifter that the trigger file has SMT monitoring enabled. If not, the DAQ shifter should enable the monitoring and start a new run. You can also start the monitoring « by hand », VRB crate by VRB crate, using the crate « details » page in the SMT download GUI, as follows:

Imagine that for some reason, you need to power cycle crate 66 during a global run. After pausing the run, you cycle the power on crate 66, you wait for the Power PC to reboot, you « Reinit VME » and you resume the run. Now, what you see on the IOC monitoring is that the monitoring process in crate 66 is probably not processing anything:

IOCM Resource Monitor Display

File View Help

SMT Readout

IOC Node	CPU %	Mem %	FD %	
crate 0x60 port 8				
d0olsmt1	64	35	36	Reboot
crate 0x61 port 30				
d0olsmt08	60	20	36	Reboot
crate 0x62 port 21				
d0olsmt13	64	20	36	Reboot
crate 0x63 port 7				
d0olsmt07	64	20	36	Reboot
crate 0x64 port 28				
d0olsmt00	55	35	36	Reboot
crate 0x65 port 27				
d0olsmt06	64	41	36	Reboot
crate 0x66 port 26				
d0olsmt09	0	34	36	Reboot
crate 0x67 port 6				
d0olsmt05	57	38	36	Reboot
crate 0x68 port 10				
d0olsmt02	60	37	36	Reboot
crate 0x69 port 25				
d0olsmt03	72	20	36	Reboot
crate 0x6a port 31				
d0olsmt14	60	38	38	Reboot
crate 0x6b port 24				
d0olsmt04	64	42	36	Reboot

Status: Reconnect all finished

Reconnect Reboot

The screenshot shows the SMT Calibration software interface. At the top, there's a title bar 'Crate: SMT Calibration' and a menu bar with options like 'VRBCR_66', 'download', 'HDI off', 'cal inject', 'reinit VME', 'calibration', 'print problem', and 'details'. Below the menu bar, there's a status bar showing 'VRBCR_66', 'download', 'HDI off', 'cal inject', 'reinit VME', 'calibration', 'print problem', and 'details'. The main window is divided into several sections. On the left, there's a list of actions: 'HDI power off', 'print problem', 'start monitoring', 'start monit run...', 'stop monitoring', 'SEQ set CALV', 'SEQ CALV 0', 'SEQ set CPWP', 'SEQ clear latched', 'VRB reset', 'VRB init', 'VRB enable', 'VRB disable', 'VRB j3 disable', 'VRB j3 enable', 'VRB j3 default', 'VRB pattern', 'VRB no pattern', 'VRB print reg', 'VRB print VTM', 'VRB print problem', 'scan HV', 'start HV GUI', 'print hdi list', 'write sdag file', 'write mon cal file', 'write off cal file', 'write pickle file', and 'write transi map'. The 'start monit run...' button is circled in blue. In the center, there's a 'Channel chain' section with a table of calibration data. The table has columns for 'SEQ', 'HDI', and 'HDI'. The 'start monit run...' button is circled in blue, and a blue arrow points from it to the 'B1-L5-HDI05-(N)' cell in the calibration table. The table contains the following data:

SEQ	HDI	HDI
SEQ_030A02_1	A B	B1-L6-HDI06-(N) B1-L5-HDI05-(N)
SEQ_030A02_2	C D	B1-L6-HDI05-(N) B1-L5-HDI04-(N)
SEQ_030A02_3	E F	B1-L1-HDI03-(N) B1-L2-HDI03-(N)
SEQ_030A03_1	A B	B1-L8-HDI04-(N) B1-L7-HDI06-(N)
SEQ_030A03_2	C D	B1-L8-HDI05-(N) B1-L7-HDI05-(N)
SEQ_030A03_3	E F	B1-L3-HDI03-(N) B1-L4-HDI03-(N)
SEQ_030A04_1	A B	B2-L1-HDI03-(N) B3-L4-HDI03-(N)
SEQ_030A04_2	C D	B2-L3-HDI03-(N) B3-L3-HDI03-(N)
SEQ_030A04_3	A B	B2-L2-HDI03-(N) B3-L2-HDI03-(N)
SEQ_030A04_4	C D	B2-L1-HDI03-(N) B3-L1-HDI03-(N)
SEQ_030A05_1	A B	B2-L5-HDI05-(N) B3-L5-HDI05-(N)
SEQ_030A05_2	C D	B2-L6-HDI06-(N) B3-L6-HDI06-(N)
SEQ_030A05_3	E F	B3-L6-HDI05-(N) B3-L5-HDI04-(N)
SEQ_030A05_4	G H	B2-L6-HDI05-(N) B2-L5-HDI04-(N)
SEQ_030A06_1	A B	B2-L7-HDI06-(N) B3-L7-HDI06-(N)
SEQ_030A06_2	C D	B2-L8-HDI05-(N) B2-L7-HDI05-(N)
SEQ_030A06_3	E F	B3-L8-HDI05-(N) B3-L7-HDI05-(N)
SEQ_030A06_4	G H	B2-L8-HDI04-(N) B3-L8-HDI04-(N)

```
xterm
[d0smt@d00128 ~]$ telnet t-d0-mch2
Trying 131.225.231.47...
Connected to t-d0-mch2.fnal.gov (131.225.231.47).
Escape character is '^'.

login: ioc
password:
digi> conn 26

-> █
```

Monitoring (4)

If everything goes as expected, this is what you should then see:

```
xterm
[d0smt@d0ol28 ~]$ telnet t-d0-mch2
Trying 131.225.231.47...
Connected to t-d0-mch2.fnal.gov (131.225.231.47).
Escape character is '^'.

login: ioc
password:
digi> conn 26

-> 0x3dcff80 (CA_client): ** Command Parsed: I
0x3dcff80 (CA_client): ** Command Parsed: N
0x3dcff80 (CA_client): ** Command Parsed: I
0x3dcff80 (CA_client): ** Command Parsed: T
process: CTL_SDAQ_66/RPLY
ssdaqInit - waiting (forever) for semaphore stateMutex
ssdaqEnd called -----
ssdaqEnd completed
ssdaqInit - got stateMutex
whatToDo parameter is: MONITOR
host: d0olc port: 52221 run: 170036 runTypeSuper parameter: MONITOR whatToDo parameter: MONITOR

ssdaqInit - reading configuration information...
buildRunConfig.c - BEGIN ...
buildRunConfig.c - before return ...
ssdaqInit - replacing host name and port number...
ssdaqInit - creating distributions...
ssdaqCreateDist: NumberOfSvx: 419 NumberOfHdi: 61
MONITOR .....
ssdaqInit - detectinging VRBC...
ssdaqInit - detecting VRB...
ssdaqInit - creating raw data buffer...
pBuf calculated based on HDIs and Chips: 214528
pBuf data buffer size: 400000
usingTFW(): 1
SBCIntConnect(handler:SBCIntHandler)
SSDAQ initialization finished successfully
***** clearDistributions *****
ssdaqInit - end of init
0x3dcff80 (CA_client): ** Command Parsed: S
0x3dcff80 (CA_client): ** Command Parsed: T
0x3dcff80 (CA_client): ** Command Parsed: A
0x3dcff80 (CA_client): ** Command Parsed: R
0x3dcff80 (CA_client): ** Command Parsed: T
process: CTL_SDAQ_66/RPLY
ssdaqProc - waiting (forever) for semaphore stateMutex
ssdaqEnd called -----
ssdaqEnd completed
ssdaqProc - got stateMutex
***** Begin of monitoring stuff *****
*****one loop*****
*****one loop*****: 1000
```

IOC Resource Monitor Display 1

File View Help

SMT Readout

IOC Node	CPU %	Mem %	FD %
crate 0x60 port 8			
d0olsmt11	60	35	36 Reboot
crate 0x61 port 30			
d0olsmt08	60	20	36 Reboot
crate 0x62 port 21			
d0olsmt13	64	20	36 Reboot
crate 0x63 port 7			
d0olsmt07	65	20	36 Reboot
crate 0x64 port 28			
d0olsmt00	55	35	36 Reboot
crate 0x65 port 27			
d0olsmt06	64	41	36 Reboot
crate 0x66 port 26			
d0olsmt09	54	19	36 Reboot
crate 0x67 port 6			
d0olsmt05	55	38	36 Reboot
crate 0x68 port 10			
d0olsmt02	61	37	36 Reboot
crate 0x69 port 25			
d0olsmt03	65	20	36 Reboot
crate 0x6a port 31			
d0olsmt14	62	38	38 Reboot
crate 0x6b port 24			
d0olsmt04	65	42	36 Reboot

Status: |Reconnect all finished

Reconnect Reboot

After 5 to 10 minutes, you can also check that the « IOC DATA UPDATE TIME » and « SES UPDATE TIME » are current on the Monitoring WEB interface.